CLAIMS:

1. A power system for supplying power to a load, the power system comprising:

a converter system comprising a first converter and a second converter; wherein the converter system is configured for operating in a first mode and a second mode; wherein the first converter and the second converter are configured to be coupled in series during the first mode, and in parallel when operating in the fault mode.

2. The system of claim 1, further comprising a transformer having a primary winding comprising a normal winding and a fault winding, and wherein the normal winding is coupled to the first converter and the second converter during the normal mode, and wherein the normal winding and the fault winding are coupled to the first converter and the second converter during the fault mode.

3. The system of claim 2, further comprising a switching circuit coupled to the transformer and configured to couple the fault winding to the converter system.

4. The system of claim 3, further comprising a sensing circuit coupled to the switching circuit and configured to sense an electrical parameter of the transformer.

5. The system of claim 4, further comprising control circuitry coupled to the sensing circuit and the switching circuit, and configured to change a state of the switching circuit based on the sensed electrical parameter.

6. The system of claim 5, wherein the electrical parameter comprises a voltage across the fault winding of the transformer.

7. The system of claim 5, wherein the electrical parameter comprises a current across a secondary winding of the transformer.

8. The system of claim 5, wherein the converter system further comprises a third converter coupled to fault winding and configured for canceling harmonic currents at an output of the transformer.

9. The system of claim 2, wherein the primary winding is wound in a zigzag pattern.

10. The system of claim 1, wherein the first converter and the second converter each comprise a rating of approximately half of a nominal power rating of the power system.

11. The system of claim 1, wherein the first converter and the second converter operate in a current control mode.

12. A power system for supplying power to a load, the power system comprising:

a generator configured to generate a variable frequency output power;

a converter system comprising a first converter and a second converter; wherein the converter system is configured for operating in a normal mode and a fault mode; wherein the first converter and the second converter are configured to be coupled in series during the normal mode, and in parallel during the fault mode;

a transformer having a primary winding comprising a normal winding and a fault winding, and wherein the normal winding is coupled to the first converter and the second converter during the normal mode, and wherein the normal winding and the fault winding are coupled to the first converter and the second converter during the fault mode;

a switching circuit coupled to the transformer and configured to couple the fault winding to the converter system;

a sensing circuit coupled to the switching circuit and configured to sense an electrical parameter of the transformer; and

control circuitry coupled to the sensing circuit and the switching circuit, and configured to change a state of the switching circuit based on the sensed electrical parameter.

13. The system of claim 12, wherein the converter system further comprises a third converter coupled to fault winding and configured for canceling harmonic currents in the output of the transformer.

14. The system of claim 13, wherein the third converter is coupled to the generator and is further configured for providing a torque for controlled motion of a prime mover in a wind turbine.

15. The system of claim 13, the third converter is coupled to the generator and is further configured for providing a power for a controlled start-up of a gas turbine

16. The system of claim 12, wherein the electrical parameter comprises a voltage across the fault winding of the transformer.

17. The system of claim 12, wherein the electrical parameter comprises a current across a secondary winding of the transformer.

18. The system of claim 12, wherein the primary winding is wound in a zigzag pattern.

19. A method for supplying power to a load, the method comprising:

sensing an electrical parameter; and

coupling a first converter and a second converter in series during a normal mode and in parallel during a second mode.

20. The method of claim 18, further comprising coupling a normal winding of a transformer to the first converter and the second converter during the first mode, and

the normal winding and a fault winding to the first converter and the second converter during the second mode.

21. The method of claim 18, further comprising canceling harmonic currents in the output of the transformer.

22. The method of claim 21, further comprising providing a torque for controlled motion of a prime mover in a wind turbine.

23. The method of claim 21, further comprising providing a power for a controlled start-up of a gas turbine

24. A method for supplying power to a load, the method comprising:

applying power to a transformer via a first converter and second converter electrically coupled in series with one another;

sensing an electrical parameter;

generating a control signal based on the sensed electrical parameter; and

applying the control signal to a switching circuit configured to switch the first and second converter to an electrically parallel configuration; and

canceling harmonic currents in the output of the transformer.

25. The method of claim 24, further comprising providing a torque for controlled motion of a prime mover in a wind turbine.

26. The method of claim 24, further comprising providing a power for a controlled start-up of a gas turbine